

What is claimed is:

1. A pin for insertion in a hole in a host material, comprising:
an elongated cylindrical body constructed from a substantially homogeneous material, said body having a longitudinal axis and a formed portion providing a retaining surface that engages an inside surface of the hole;
said retaining surface defined by a plurality of helical lands having a width separated by a plurality of helical grooves of approximately equal width, said lands being at least partially formed from pin material displaced from said grooves,
wherein at least a portion of each land includes a cylindrical surface parallel to said longitudinal axis at a substantially uniform radial distance from said longitudinal axis.
2. The pin of claim 1, wherein said lands are oriented at an angle of approximately 45° relative to said longitudinal axis.
3. The pin of claim 1, wherein said pin is formed from cylindrical stock having a first diameter and said retaining surface has a second diameter larger than said first diameter
4. The pin of claim 3, wherein said second diameter is no greater than approximately 9% larger than said first diameter.
5. The pin of claim 4, wherein said spiral grooves and lands are oriented at an angle of approximately 45° relative to an axis of said pin.
6. The pin of claim 1, wherein said lands have a surface area that is at least approximately 40% of a surface area of said formed portion.

7. The pin of claim 3, wherein a majority of each of said lands has a substantially uniform height extending above said first diameter and the width of said land is at least approximately five times said height.
8. The pin of claim 3, wherein a majority of each of said lands has a substantially uniform height extending above said first diameter and the width of said land is between five and fifteen times said height.
9. The pin of claim 1, wherein a majority of each said land is a land includes said substantially cylindrical surface parallel to and having a substantially uniform radial displacement from the longitudinal axis.
10. A pin and substrate combination comprising:
 - a substrate having a first hardness and defining a hole having a first diameter; and
 - a pin for insertion into said hole, said pin having a second hardness less than said first hardness and a retaining surface at a second diameter larger than said first diameter, said retaining surface defined by a plurality of lands having a width separated by a plurality of grooves of approximately equal width,
 - wherein at least a portion of each land includes a cylindrical surface parallel to said longitudinal axis at a substantially uniform radial distance from said longitudinal axis.
11. The pin and substrate combination of claim 10, wherein said second diameter is no more than approximately 4% larger than said first diameter.
12. The pin and substrate combination of claim 10, wherein said lands and said grooves are helical.

13. The pin and substrate combination of claim 10, wherein said lands and said grooves are helical and have an angle of approximately 45° relative to an axis of said pin.

14. The pin and substrate combination of claim 10, wherein said first and second hardnesses are measured on the Rockwell Rc scale and said first hardness is approximately 10 points higher on the Rockwell Rc scale than said second hardness.

15. The pin and substrate of claim 10, wherein said pin is formed from cylindrical stock having a third diameter and said second diameter is greater than said third diameter.

16. The pin and substrate combination of claim 15, wherein said second diameter is less than approximately 9% larger than said third diameter.

17. The pin and substrate combination of claim 10, wherein said retaining surface is carried on a formed portion of said pin and said lands have a surface area which is at least approximately 40% of a surface area of said formed portion.

18. The pin and substrate combination of claim 15, wherein a majority of each of said lands has a substantially uniform height extending above said third diameter and the width of said land is at least approximately five times said height.

19. The pin and substrate combination of claim 14, wherein a majority of each of said lands has a substantially uniform height extending above said third diameter and the width of said land is between five and fifteen times said height.

20. The pin and substrate combination of claim 10, wherein said lands are at least partially formed from pin material displaced from said grooves.

21. A pin for insertion in a hole in a host material and frictional retention therein, comprising:

an elongated cylindrical body having a longitudinal axis, a cylindrical pilot portion, and a retainer portion defined by a plurality of alternating helical lands and grooves, wherein said lands provide a retaining surface for engaging an inside surface of the hole;

said retaining surface being a radial distance from the axis that is greater than a radius of the pilot portion and occupying at least approximately 40% of the circumference of the retainer portion when the retainer portion is viewed in cross section perpendicular to said axis.